

Amendment to the Specification

Please amend the first full paragraph of page 7 by breaking it into two separate paragraphs as follows, where additions relative to the original are indicated by underlines:

Referring next to FIG. 2, a Wheatstone (or resistance) bridge type electrical circuit 36 was formed incorporating two weight sensors 20 that demonstrate variable resistance R_1 and R_2 and two fixed resistors 22 that demonstrate substantially fixed resistance R_0 , where the imbalance between the sensor voltages provided a measure of the weight imbalance at the legs 12. As mentioned in the previous paragraph, weights measured by the sensors 20 can be used to send a weight difference or a weight ratio to the controller 30. For example, the measure of imbalance between the two weight sensors 20 can be given by the simple ratio of $(W_1 - W_2)/(W_1 + W_2)$, where W_1 and W_2 represent the measured weight at each of the sensors 20, respectively. In such circumstance, it will be readily appreciated that the range of imbalance is normalized between -1 and 1, thereby removing the need for calculating actual weight values and making the range of imbalance applicable for climbers of various weights. A zero reading means an exact balance ($W_1 = W_2$) between the two sensors 20, and an imbalance measure of ± 1 means instability resulting from either of the two sensors 20 registering a weight value that approaches zero. Thresholds for the aforementioned heightened alert displays 200B and 200C can be set by a choice of the values for the imbalance measure.

Battery 32 (for example, a conventional nine-volt battery) provides power to controller 30, although it will be appreciated that other power sources could be employed, including, for example, solar cells or related photovoltaic devices. When equal weight is applied to both sensors 20, R_1 will equal R_2 and the corresponding output voltages V_1 and V_2 will be equal. Contrarily, a weight imbalance on ladder 10 shows up as a difference between V_1 and V_2 . In the simplest system, output voltages V_1 and V_2 could be wired directly to meter 100, as shown in FIG. 3A. In a preferred (but by no means necessary) system, the output voltages V_1 and V_2 will be further processed by either digital or analog electronics in controller 30 to provide a more reliable warning system. In one preferred embodiment, voltages V_1 and V_2 will be read by

controller **30** that would include an analog-to-digital (A/D) converter and a microprocessor (not shown). The microprocessor will control the tip warning system **60** according to a program stored into its memory where, as previously discussed, the tip warning system **60** may include one or more of the aforementioned alarms, such as the lights **50**, meter **100**, display **200**, audio system **40** or some combination thereof. The measured values from the weight sensors **20** are then used to calculate the imbalance according to an algorithm and compared to a predetermined threshold. If controller **30** detects imbalance beyond the predetermined threshold, at least one of the audio and visual alarms **40**, **50** are activated to alert the user. Tip warning system **60** can be programmed such that the companion audio alarm **40** responds either progressively (with, for example, a loudness or frequency level that increases concomitant to the aforementioned ladder safety category) or selectively (for example, not until a predetermined threshold). The indicia enabled by audio alarm **40** is beneficial in that a ladder user need not constantly maintain line-of-sight contact with a visual alarm to be apprised of a potentially dangerous ladder **10** operating condition. The two separate forms of indicia made possible by combining audio and video alarms **40**, **50** further improves the chances that a user will be alerted that a potentially dangerous ladder operating condition has been, or is about to be, reached. Operational status of tip warning system **60** could be ensured by including a confirmation signal, such as a simple, slow-period (i.e., low frequency) beep from the audio alarm **40** or a slow-period flash of light from the visual alarm **50**.